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10/660,382

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Jason A. Gratz

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12/24/2008

GREENLEE WINNER AND SULLIVAN P C

4875 PEARL EAST CIRCLE

SUITE 200

BOULDER, CO 80301

EXAMINER

LEE, CYNTHIA K

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

12/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/660,382

Applicant(s)

GRAETZ ET AL.

Examiner

CYNTHIA LEE

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 16 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-20, 26 and 28-49 is/are pending in the application.
- 4a) Of the above claim(s) 8-20 and 29-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 7, 26, 28 and 36-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Amendment

This Office Action is responsive to the amendment filed on 10/16/2008. Claims 36-49 have been added. Claims 1-3, 6-20, 26 and 28-49 are pending. Claims 8-20 and 29-35 are withdrawn from further consideration as being drawn to a non-elected invention.

Applicant's arguments have been fully considered and are persuasive and 35 USC 102 rejection has been overcome. However, upon further consideration, the instant claims are rejected under new grounds of rejections. Claims 1-3, 6, 7, 26, 28, 36-49 are finally rejected for reasons necessitated by applicant's amendment.

Election/Restrictions

Newly submitted claims 37 and 47 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the limitation "both crystalline and amorphous domains" constitutes a distinct species as disclosed in par. [0046] of the US PGPUB 20040126659.

.Since applicant has received an action on the merits for the originally presented invention (amorphous film), this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 37 and 47 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Priority

The provisional application of the instant invention 60/409516 does not support the claimed subject matter of "a thickness selected over the range of 100 nm to 200 nm"

(claim 1) or "not greater than about 200 nm thick" (claim 38). Thus, priority was not given to the instant set of claims.

Claim Objections

Claim 48 is objected to because of the following informalities: the status identifier is missing. Appropriate correction is required.

Claims 39-49 are objected to because of the following informalities: it appears that the claims should be dependent on claim 38, not 48. Appropriate correction is required.

Claim 44 should be dependent on claim 38, not 48. Appropriate correction is required.

Claim 45 should be dependent on claim 44, not 54. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 41 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. The range of claim 41 does not further limit claim 38. It is unclear which range the Applicants are intending to claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7, 36, 38-43, 46, 48, 49 are rejected under 35 U.S.C. 102(b) as being anticipated by Takamura (Abstract 257, the 11th International Meeting on Lithium Batteries, Monterey, CA June 23-28, 2002).

Takamura discloses an electrode comprising Si film with a thickness of 100 to 1000 Angstroms (or 10 nm to 100 nm). MPEP states that prior art which teaches a range overlapping or touching the claimed range anticipates if the prior art range discloses the claimed range with “sufficient specificity.” See 2131.03.

Regarding claims 3, 38, 40, 48, 49, it is inherent of the electrode of Takamura.

Thus, claims 1-3, 7, 36, 38-43, 46, 48, 49 are anticipated.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Takamura (Abstract 257, the 11th International Meeting on Lithium Batteries, Monterey, CA June 23-28, 2002).

Regarding the limitation "synthesized by physical vapor deposition", it is noted that the courts have held that the method of forming the product is not germane to the issue of patentability of the product itself. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from the product of prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Therefore, claim 10 is anticipated by Bett, Tashiro, or Hinton. However, if the claims are not anticipated, the claims are obvious as it has been held similar products claimed in product-by-process limitations are obvious. *In re Brown* 173 USPQ 685 and *In re Fessman* 180 USPQ 324. See MPEP 2113. Once the examiner provides a rationale tending to show that the claimed product

appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26,28,44,45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamura (Abstract 257, the 11th International Meeting on Lithium Batteries, Monterey, CA June 23-28, 2002)

Takamura discloses an electrode comprising Si film with a thickness of 100 to 1000 Angstroms (or 10 nm to 100 nm). MPEP states that prior art which teaches a range overlapping or touching the claimed range anticipates if the prior art range discloses the claimed range with "sufficient specificity." See 2131.03.

Regarding the limitation "synthesized by physical vapor deposition" in claim 43, it is noted that the courts have held that the method of forming the product is not germane to the issue of patentability of the product itself. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of

production. If the product in the product-by-process claim is the same as or obvious from the product of prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Therefore, claim 10 is anticipated by Bett, Tashiro, or Hinton. However, if the claims are not anticipated, the claims are obvious as it has been held similar products claimed in product-by-process limitations are obvious. *In re Brown* 173 USPQ 685 and *In re Fessman* 180 USPQ 324. See MPEP 2113. Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

Takamura discloses a cell comprising an electrode and electrolyte, but does not disclose a cell comprising an anode, a cathode, and electrolyte. Takamura discloses an improved Si film for Li ion batteries. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the anode of Takamura to a lithium ion battery for the benefit of improving the performances of portable electronic devices.

Claims 6 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamura (Abstract 257, the 11th International Meeting on Lithium Batteries, Monterey, CA June 23-28, 2002) as applied to claims 1 and 38, in view of Sayama (New active

material structure in Si thin film electrode for rechargeable lithium batteries, Abstract 52, The 11th meeting on Lithium Batteries, Monterey CA, June 23-28, 2002).

Takamura discloses all the elements of claim 1 and are incorporated herein. Takamura does not disclose that the nanofilm is amorphous. Sayama teaches a silicon film that is amorphous. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the silicon film of Takamura amorphous, as taught by Sayama, since it is known in the art to make amorphous silicon films for lithium ion batteries.

Response to Arguments

Applicant's arguments filed 9/15/2008 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure (attached herewith):

Maranchi, J.P., High capacity, reversible silicon thin-film anodes for lithium-ion batteries, Electrochemical and Solid-State Letters, 6(9), A198-A201, 2001.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art
Unit 1795